

Pediatric PIV Access Randomized Controlled Trial

Efficacy of VeinViewer in Pediatric Peripheral Intravenous Access: A Randomized Controlled Trial

THE HIGHLIGHTS

Introduction

- Vascular access in critically ill children is a challenge
- Small, deep veins and presence of subcutaneous tissue make palpation difficult.

Purpose of the Study

- To determine whether use of VeinViewer® in infants and children facilitated peripheral venous access, especially in difficult cases.

Outcome Measures

- First attempt success rates and procedural time between VeinViewer group and control group.

IN SUMMARY:

In hospitalized children, peripheral venous access is usually required after admittance. Even experts, however, have difficulty with peripheral venipuncture in pediatric patients.

Many medical devices have been developed recently to assist clinicians with venipuncture. In this study, VeinViewer, a vascular access assistive device, was compared against standard peripheral IV access methodology during a randomized controlled clinical trial.

The study authors randomized 111 pediatric patients between the ages of 1 month and 16 years into either the VeinViewer (n=54) or standard groups (n=57). Nurses who had at least 3 years of pediatric experience were recruited to perform the study on PIV access.

The primary outcome measures investigated by the authors were (1) first attempt success rate and (2) the total procedural time. Sub-group analysis for difficult venous access patients was also investigated.

The study authors found significant improvement of first attempt success rate in the VeinViewer group when compared against the control group ($p=0.026$). Additionally, the study team saw a significant trend toward improvement of overall procedural time during peripheral venous access ($p=0.056$). A separate group from Taiwan also found similar results in success rate and improvement in time when comparing VeinViewer against standard methods (Ching-Y.S.).

These results demonstrate that the use of VeinViewer in peripheral venous access can improve first attempt success and decrease the time required to perform the procedure, benefiting both the clinician and the patient.

Results	Outcome Measure	VeinViewer Group	Control Group	% Improvement (p-value)
	First attempt success rate	58.3% (14/24)	25.0% (5/20)	133% (0.026)
	Overall procedural time per patient (s)	54 (44,106)	92 (75,156)	41% (0.056)

Conclusion

VeinViewer facilitated peripheral venous access for pediatric patients with difficult veins, which increased first attempt success rates and shortened procedural time.

Ref: Kim, MJ, et al. Efficacy of VeinViewer in pediatric peripheral intravenous access: a randomized controlled trial. *European J. Pediatrics* (2012)